

BASE FROM USGS TOPO SERIES:
BRADFIELD CANAL, 1955, ALASKA-CANADA

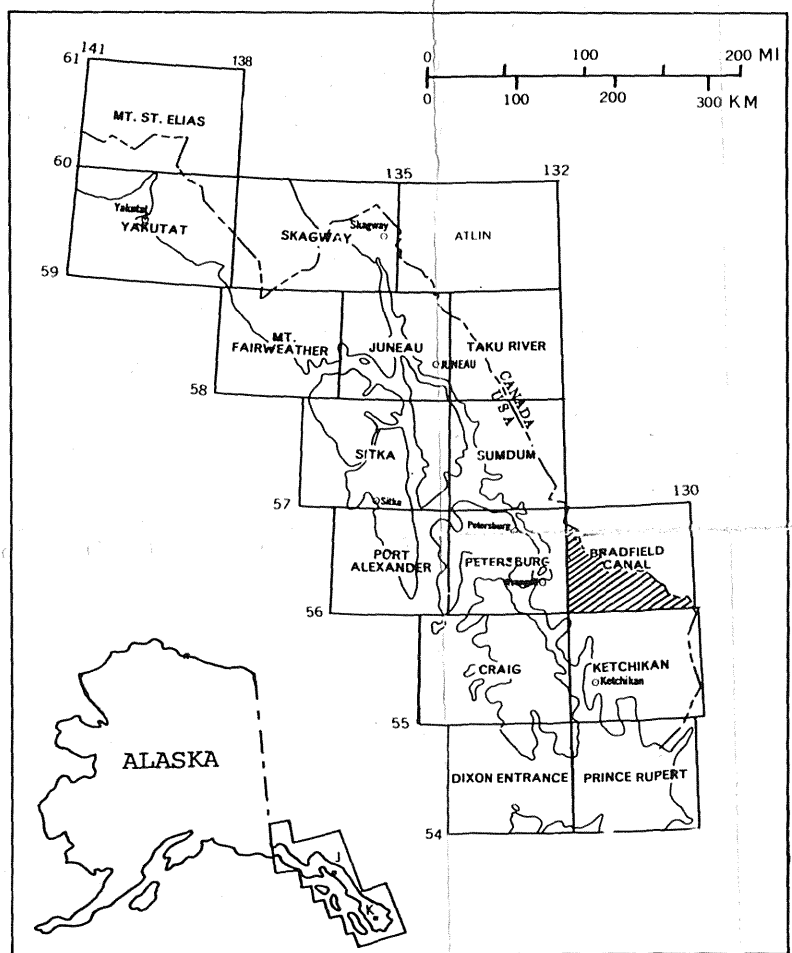
EXPLANATION
— LINEAMENT, WIDTH OF LINEAMENT
ZONE (FEATURE A-A) SHOWN BY ARROWS

LINEAMENT MAP

Geology by H. C. Berg, D. A. Brew, A. L. Clark, W. H. Condon,
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J. D. Gallinatti, M. H. Herdrick, S. M. Karl, R. D. Koch,
M. L. Miller-Hoare, R. P. Morrell, J. G. Smith, and
R. A. Sonnenfrit, 1968-1979.

Unit Descriptions - Generalized Geologic Map

Unit	Description
Qu	UNCONSOLIDATED DEPOSITS, UNDIVIDED (Quaternary)
Qtz	BASALT (Quaternary and Tertiary)
Tgr	ALKALI-FELDSPAR GRANITE WITH ASSOCIATED QUARTZ-PORPHYRY RHYOLITE Dikes and flows (Miocene)
Tgq	BIOTITE-PHONOXYEN GABBRO, LOCALLY CONTAINS HORNBLENDE AND/OR OLIVINE (Miocene)
Telg	LEUCOCRATIC QUARTZ MONZONITE AND GRANODIORITE (Eocene)
Tpqr	GRANODIORITE AND QUARTZ DIORITE (Eocene)
Tq	QUARTZ DIORITE (Eocene or Paleocene)
TKlg	LEUCOCRATIC QUARTZ MONZONITE AND GRANODIORITE (Tertiary and/or Cretaceous)
TKgr	GRANODIORITE AND QUARTZ DIORITE (Tertiary and/or Cretaceous)
Kgr	BIOTITE-HORNBLLENDE QUARTZ DIORITE, PLAGIOCLASE-PORPHYRYTIC BIOTITE GRANODIORITE/QUARTZ DIORITE, BOTH LOCALLY CONTAIN GARNET AND/OR DIORITE (Cretaceous)
Tt	TEXAS CREEK GRANODIORITE (Triassic)
MzPzmg	Migmatite and orthogneiss, with lesser paragneiss (Mesozoic and/or Paleozoic)
MzPzpo	PARAGNEISS AND ORTHOGNEISS, WITH LESSER AMPHIBOLITE AND MARBLE (Mesozoic and/or Paleozoic)
MzPzp	SCHIST AND PARAGNEISS, WITH LESSER AMPHIBOLITE AND MARBLE (Mesozoic and/or Paleozoic)
MzPzv	METASANDSTONE AND LESSER METAVOLCANIC ROCKS, WITH LOCAL MARBLE (Mesozoic and/or Paleozoic)



INDEX MAP SHOWING LOCATION OF THE
BRADFIELD CANAL QUADRANGLE

DISCUSSION

Landsat images of the Bradfield Canal quadrangle were analyzed for lineaments, and
circular and arcuate features as a possible aid in the mineral resource assessment of the
area.

This study is a modified version of more-detailed interpretative investigations con-
ducted in other areas in Alaska (Albert, 1975; Albert and Steele, 1976a, b; Albert and
others, 1978; Steele and Albert, 1978); the report is abridged and the methodology in-
volved is similar to that used by Holmes (1978). Details concerning the different types
of imagery used are given in "Table of Imagery Used in Analyses".

Although many lineaments and circular and arcuate features are observed from the im-
agery of the quadrangle, no marked spatial relation between these features and known min-
eralization (Elliott and Koch, 1981) is apparent. Noteworthy geologic correlations can be made, however, with many of the Landsat fea-
tures observed in the quadrangle.

- (1) A well-defined, generally northwest-trending set (zone) of lineaments (lineament
map, sheet 1; feature A-A) marks the location of the Coast Range megalineament
(Brew and Ford, 1977) within the southwest part of the quadrangle. A disjunction
(separation) in the trace of the lineament zone immediately to the north and south
of Burroughs Bay (in the southeasternmost part of the Bradfield Canal) and in the
northeasternmost part of the Ketchikan quadrangle) may indicate an apparent, left-
lateral offset (of approximately 5 kilometers) of the megalineament along the length
of Burroughs Bay.
- (2) Lineament feature B (lineament map, sheet 1) is part of a series of generally north-
trending lineaments (located in the southeast corner of the Bradfield Canal quadrangle
and in the northeast corner of the Ketchikan quadrangle) that may be indicative
of a previously unrecognized, high-angle fault at this locality (Raymond L. Elliott,
oral commun., 1981).
- (3) Lineament features C (lineament map, sheet 1) which are located in the vicinity of
the south-central margin of the quadrangle mark the traces of generally northeast-
trending (linear) valleys formed by differential erosion along the Tertiary lapro-
phyre dikes and joint sets present in this region (Smith, 1973; Richard D. Koch,
oral commun., 1981).
- (4) Lineament features D-D', E-E', and F-F' (lineament map, sheet 1) which are located in
the south-central part of the quadrangle are prominently developed features herein
interpreted as (probably) representing either large-scale joints or previously un-
recognized fault traces in this area.

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quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-870-C,
2 sheets, scale 1:250,000.

TABLE OF IMAGERY USED IN ANALYSES

Scenes used for computer- and photo-optical enhancement are 1771-19111, taken September 2, 1974, and 5866-17554, taken
September 1, 1977. Computer-compatible tapes were processed by Pat S. Chavez, Jr. and Ellen Sanchez, U.S. Geological
Survey, Flagstaff, Arizona; for a description of this type of enhancement (simulated natural color), see Albert and
Steele (1978a, b) and Condit and Chavez (1978). All imagery is available from ERSS Data Center, Sioux Falls, SD 57198
(specify PAD number when ordering). Example of imagery is shown in Figure 2.

IMAGE TYPE	COMPUTER- ENHANCED	BANDS AND COLORS USED	PROJECTION	PAD NUMBER	SCENE ID NUMBER	TRANSPARENCY SCALE	PRINT SCALE
Simulated natural color	Yes	4 Green 5 Red Syn Blue	Orthographic	E-1276-77CT	1771-19111	1:1,085,000	1:250,000
False-color (FOC) - BC	No	4 Blue 5 Green 7 Red	Space Cylindrical	E-1276-77CT	5866-17554	1:997,500	1:250,000

PDE = photo-optically enhanced

This report is preliminary and has
not been reviewed for conformity
with U.S. Geological Survey editorial
standards and stratigraphic nomenclature

MAPS SHOWING INTERPRETATION OF LANDSAT IMAGERY OF THE BRADFIELD CANAL QUADRANGLE, SOUTHEASTERN ALASKA

by
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